Contralateral Islanded Facial Artery Myomucosal Flap for the Reconstruction of Floor of the Mouth Defect

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Abstract

Keywords

- islanded facial artery myomucosal flap
- FAMM flap
- local flaps for tongue reconstruction
- synchronous mucoepidermoid carcinoma

Reconstruction of floor of the mouth and ventral surface of the tongue defects can be challenging because inadequate correction can lead to mobility restriction of the tongue and resultant impairment of speech and swallowing. Ideal flap should be pliable, provide adequate bulk, be easy to harvest, and cosmetically acceptable. Commonly used ipsilateral facial artery–based myomucosal flaps may not be ideal if facial vessels need resection. We share our experience in a case of simultaneous primary mucoepidermoid carcinoma of right submandibular and sublingual glands, with a postsurgical defect involving floor of the mouth and ventral surface of the tongue, reconstructed with islanded facial artery myomucosal flap raised from left buccal mucosa and tunneled into the right floor of the mouth defect medial to mandible. The case is being reported to share the method of reconstruction as well as for the rare presentation of simultaneous primary mucoepidermoid carcinoma of multiple major salivary glands.

Reconstruction of defects of floor of the mouth remains a challenge, as inadequate correction hampers the tongue movements. The idea behind flap reconstruction is to separate the oral cavity from the neck. The chosen flap should not interfere with speech and swallowing. Various options ranging from local flaps such as nasolabial, infrahyoid, submental, and conventional pedicled facial artery flap to microvascular free flaps such as radial artery forearm flap (RAFFF), perforator peroneal artery flap, etc., are available.

In 1992, Pribaz et al described facial artery myomucosal (FAMM) flap for the reconstruction of various subsites of the oral cavity.¹ We share a technique of contralateral islanded FAMM flap in the reconstruction of floor of mouth defects.

Surgical Technique

We report a case of biopsy-proven high-grade synchronous mucoepidermoid carcinoma of right sublingual and subman-

dibular salivary glands. Magnetic resonance imaging (MRI) of the neck and oral cavity confirmed the clinical findings with no cervical lymph node involvement (as shown in ►Fig. 1). Following written informed consent, patient underwent per oral wide local excision of the right sublingual gland along with overlying floor of the mouth mucosa and part of adjacent ventral surface of the tongue (as shown in ►Fig. 2). The mylohyoid muscle was not breached while dissecting. Right side submandibular tumor along with the neck nodes was addressed via visor approach. Submandibular tumor was excised en bloc with ligation of the involved facial vessels. Selective neck dissection was done with clearance of nodal levels I to IV on the right. Left side neck node dissection was not done, as there were no nodes identified on imaging. Left facial vessels were dissected and separated from the submandibular salivary gland. On the left buccal mucosa, 5 × 3 cm myomucosal flap was marked and dissection continued by preserving the proximal part of the facial

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Fig. 1 Preoperative magnetic resonance imaging.

artery. The flap was raised leaving behind intact facial skin and was delivered into the neck (as shown in ►**Fig. 3**). The flap was tunneled through mylohyoid muscle and inset into the right side floor of the mouth defect without kinking or stretching the vascular facial pedicle. Donor site was covered with buccal fat pad. Postoperatively, patient was nutritionally managed via nasogastric tube feeding for 10 days. Patient was rehabilitated with mouth opening exercises. Postoperative phase was uneventful and flap healed well (as shown in ►**Fig. 4**). Histopathology report revealed high-grade mucoepidermoid carcinoma of both salivary glands, with no cervical node metastasis. Patient underwent adjuvant radiation 60 Gy (30 fractions). At 6-month follow-up, donor buccal mucosa was healed well and mouth opening was 42 mm (as shown in ►**Figs. 5 and 6**).

Fig. 2 Per oral excision of right sublingual gland.

Fig. 3 Contralateral cheek myomucosal flap islanded on facial vessels delivered into neck.

Discussion

Perforator' flaps based on facial artery have been used for reconstruction of various defects of oral cavity.² FAMM flap was first described by Pribaz et al¹ in 1992. Initially, authors proposed a two-stage procedure as a pedicled flap attached to the base. In 1999, Zhao et al described in detail the vascular anatomy and explained the basis for islanding the FAMM flap.³ Massarelli et al demonstrated the utility of islanded FAMM flap in oral cavity reconstruction.⁴ Joseph et al similarly proposed the use of this flap for reconstruction of ipsilateral tongue defect as a single-stage procedure.⁵ Rahpeyma et al suggested that the pedicle length of inferiorly based FAMM flap was adequate to reach the defects between jawline and nasal alae and almost any part of oral cavity.⁶ Similarly, Khan et al and Massarelli et al described use of this flap for oropharyngeal reconstruction and soft palate

Fig. 4 Immediate postoperative status.

Fig. 5 Six months postoperative status.

Fig. 6 Cheek donor site healed well with adequate mouth opening at 6 months follow up.

reconstruction emphasizing the long arc of rotation of the flap.^{7,8} As an axial flap, FAMM flap can be raised as either superior or inferior based on facial artery.⁹ Oncologic safety of preserving facial vessels in N0 neck and use of FAMM flap have been well described by Ferrari et al.¹⁰

Local flaps commonly used include submental, nasolabial, and infra hyoid flaps. Node positivity in neck risks the use of submental flap for reconstruction. Facial scarring and need for a second procedure make the use of nasolabial flap less

acceptable.¹¹ Wang and Shen described infrahyoid myocutaneous flap as an excellent flap with predictable vasculature and adequate reach in oral cavity reconstruction.¹² Limitation of this flap is unpredictability of skin paddle viability and scar in the neck.

Microvascular free flaps such as radial artery forearm free flap remain the gold standard for soft-tissue reconstruction. This flap is versatile due to excellent tissue pliability and pedicle length. Flap contracture, scar in the forearm, need for donor-site skin grafting, tendon exposure, altered sensation of fingers, two-team approaches, and higher costs are some of the drawbacks of this versatile flap.¹³ In comparison to RAFFF, islanded FAMM flap can serve as a useful option in our armamentarium in the reconstruction of small-to-medium defects of oral cavity (tongue, floor of the mouth, soft palate), as it is reliable, provides adequate bulk and suppleness of tissue, has excellent color match to oral soft tissue, has sufficient pedicle length with good arc of rotation, is easy to harvest, is economical, has no visible scar, and is a single-stage procedure.

Conflict of Interest

None.

Funding

None.

Ethical Clearance

Not obtained, as this is a technical modification of previously described technique.

Informed Patient Consent

Obtained.

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